Optimization of the Ways of Cleansing Burn Wounds From Purulent-Necrotic Masses in Children

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ANNOTATION

Thermal injuries occupy a significant place in the structure of accidents in children. It should be noted that thermal injury in children always causes a more severe reaction than in adults. It is the anatomical and physiological features of the growing organism that determine such a specific course of burn disease, and the age of children has a significant impact not only on its clinical course but also on the further development of complications and subsequent mortality.

KEYWORDS: *Children, Caripazim, necrolysis.*

Thermal injuries occupy a significant place in the structure of accidents in children. The proportion of children among those burned varies from 30 to 72% [1,3,6]. It should be noted that thermal injury in children always causes a more severe reaction than in adults. It is the anatomical and physiological features of the growing organism that determine such a specific course of burn disease, and the age of children has a significant impact not only on its clinical course but also on the further development of complications and subsequent mortality[2,4,5]. The younger the child's age, the more severe and longer the course of the burn disease. The most severe and life-threatening burns are observed in children under three years of age (S. I. Vozdvizhensky et al., 2000). The mechanism of development of acute burn toxemia in children has not been fully understood, especially for young children. It is assumed that it is based on the intoxication of the body with protein breakdown products caused by an increase in the proteolytic activity of the blood or a change in its heparin activity [7,8,9,10]. It is important to note that intoxication may be due to toxic substances coming from burned tissues and having antigenic properties leading to auto sensitization. An additional place is occupied by products of intermediate metabolism [11,12]. The early age of children contributes to the rapid and frequent development of the stage of toxemia. Often patients with toxemia arrive in the first 10 days after the burn. The criteria for successful treatment of burn patients are not only wound healing but also good functional and cosmetic results [13,14]. Local treatment of burn wounds has characteristics depending on the stage of the disease, the nature of the wound process and the localization of wounds. If there are signs of shock, we do not recommend covering the wound surface with ointment dressings, since their presence can increase pain impulses[15,16]. It should be noted that local treatment begins immediately after the patient is taken out of shock. Currently, two methods of local treatment of burn wounds in children are mainly used (open and closed). The most widespread is the closed method with the use of various ointments, emulsion, ns, and solutions of medicines in the treatment of superficial burns, as well as enzyme preparations for cleansing wounds from necrotic tissues. Their cleansing from necrotic tissues is the right way to successful treatment and early recovery of burn patients. Earneurectomy significantly reduces the absorption of necrolysis products and bacterial toxins, thereby reducing the degree of intoxication of the body as its general reaction to thermal injury. Although the methods of surgical cleansing are widely used in modern combustiology in children and adults, they are, unfortunately, highly traumatic. In this case, the

means of selective enzymatic necrolysis will help to increase the efficiency and safety of the wound cleansing procedure.

The purpose of the study: To optimize the ways of cleansing burn wounds from purulent-necrotic masses.

Materials and methods. The studies were carried out in the combustiology department of the Samarkand branch of the Republican Scientific Center for Emergency Medical Care. The study group included 381 people. In the first group, we evaluated the effectiveness and safety of early cleansing of necrosis in patients with III-IV degree thermal injury, which included 200 pediatric patients from 2 months to 12 years of age. All patientsin the first group were prescribed wraps and enzymatic necrolysis by using the drug Caripazim. According to the instructions of the drug, the main purpose of its use is to accelerate the rejection of the scab and the cleansing of granulating wounds from purulent-necrotic masses. The second group consisted of 181 patients who underwent surgical methods of treatment to remove necrotic masses.

Results. According to clinical data, according to the results of the Doppler laser study and histological data (necrosis to the level of the papillary or reticular layer of the dermis), all our patients had depths of III-IV degree burn damage. The rapid course of acute burn toxemia was observed in 30 children with wet necrosis, who received extensive burns with flames and hot liquid. In these cases, intoxication with protein breakdown products and the development of wound infection was important in the genesis of toxemia more’re gradual development of toxemia and its prolonged courseware were observed in 105 sick children with contact burns. A characteristic clinical symptom during this period was an increase in body temperature, especially in children with wet decay of dead tissue. Fever markedly worsened the condition of patients, especially children under one-year-old. It is important to note that the use of antibiotics and sulfa drugs did not reduce fever. Our observations showed that only the cleansing of the burn wound from necrosis neurectomy with skin plasty.

Type of thermal agent and nature of necrosis in children

Type of thermalagent	Number of children with toxemia	Wet necrosis		Coagulative necrosis	
		Absolutenumber	%	Absolutenumber	%
Hotliquids	156	156	100,0		
Contact	192			192	100,0
Flame	30	7	23,3	23	76,7
Other	3	3	100,0		
Total	**381**	**166**	**43,5**	**215**	**56,5**

It is noteworthy that out of 156 children who received burns with boiling water, 134 had dermal burns. At the same time, dead tissues began to suppurate on the 3-5th day. In the remaining (22 children) patients with wet necrosis (III-B degree), suppuration was observed by 5-6 days after the injury. Suppuration in the foci of wet necrosis occurred according to the type of melting of non-viable tissues.

The course of toxemia in this group of children was characterized by high fever, general severe condition, anorexia, severe anemia, hypo- and dysproteinemia, disturbance of interstitial metabolism, increased activity, ALD, AST, ALT, and alkaline phosphatase in the blood and hypocholesterolemia, an increase in amylase activity and a decrease blood lipases.

In 215 children, mostly those who received contact burns” (192), it was found that not only all layers of the skin (SB degree) were affected, but also deeper tissues due to prolonged exposure to high-

temperature agents (sandalwood and flame). Therefore, in this group of children, a combination of SB and IV-degree burns was noted, i.e., simultaneous damage to two or more different tissues. Patients developed a dense dark or dark brown eschar with thrombosed subcutaneous vessels. Inflammatory edema was not pronounced, due to mechanical compression of the underlying viable tissues by a burn eschar, as well as a decrease in extracellular and interstitial space. Along with this, under the influence of high temperature, blood flow through the capillaries stops, and nerve endings die, which helps to reduce afferent impulses from the lesion.

After the application of wrappings with cariprazime, the wound was cleansed to the level of the mesh layer. It should be noted that healthy skin remained intact after contact with Cariprazim. It should be noted that we prescribed the drug Caripazim for 7-8 days of hospital stay. In the first group, complete cleansing of wounds was noted for 2-3 weeks from the start of the use of Cariprazim. In patients of the second group, complete clearance of purulent-necrotic masses was noted on the 21-28th day of hospital stay.

Conclusions. The use of enzymatic necrolysis is a non-traumatic treatment method that allows selective cleaning of the burn wound to a viable dermis layer ready auto desmoplastic in the earliest possible time. As can be seen from the study, the speed of cleansing wounds from purulent-necrotic masses depends on the depth of the lesion, but in any case, it improves the effectiveness of the cleansing procedure itself, is not traumatic, and also reduces the stay of patients in the hospital, reduces the consumption of not only dressings but also economic costs per patient.

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